



## **Oak Ridge Institute of Science and Education (ORISE)**

*Educational and Research Experiences*

### **Program Description**

The Oak Ridge Institute of Science and Education (ORISE) administers research participation, fellowship, scholarship, and internship programs for the US Department of Energy (DOE) and other federal agencies. In 2000 alone, ORISE placed ~2,300 students and faculty from more than 700 universities at over 100 national laboratories and key research centers nationwide. By identifying future manpower needs in key scientific and technical areas, and connecting talented students with scientific leaders, ORISE is helping to prepare tomorrow's scientific work force.

ORISE is managed by the Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 85 doctoral-granting colleges and universities, including a significant representation of minority-serving institutions. ORAU operates ORISE to provide operational capabilities and conduct research, education, and training for the Department of Energy in the areas of science and technology, national security, environmental safety and health, and environmental management.

ORISE programs target faculty, postgraduates, graduates, and undergraduates involved in a science, mathematics, or engineering discipline. A variety of educational opportunities are available, all of which offer ten- to twelve-week summer practicums at participating US DOE sites. Participants receive guest appointments at the host facility and are not considered to be contractors or employees of the host facility, Oak Ridge Institute of Science and Education, Oak Ridge Associated Universities, or the Department of Energy.

Through its partnership with the Oak Ridge Institute of Science and Education, which began in FY83, the Laboratory strengthens its ties with the academic community while at the same time

focusing on developing a highly trained, diverse work force to help meet this country's science and technology needs.

For more information on ORISE, visit <http://www.ornl.gov/orise/educ.htm>.

### **Performance Objective and Milestones**

Utilizing their state-of-the-art research facilities, the Laboratory, in partnership with the Oak Ridge Institute of Science and Education, recruits and places students and faculty in summer research projects that support the Laboratory's mission and critical skills areas. Research areas focus on theory, modeling, and high-performance computing and nuclear weapons science and technology. Critical Skills Areas #1, Nuclear Design and Evaluation, #2 Physics, #3 High Performance Computing and Simulation.

### **Highlights of this Year's Accomplishments**

The ORISE programs at the Laboratory had two participants during FY01—one faculty and one graduate research assistant—both of whom were

on a three-month appointment. The faculty member was a returning participant from the FY00 program. Both participants planned to continue research collaborations with their Laboratory mentors once they returned to their respective campuses.

- The faculty participant, Dr. Andrew Martinez, is a Professor of Life Sciences, University of Texas-San Antonio. His research at the Laboratory involved carrying out cell biology and molecular biology experiments pertaining to altering cellular gene expression. He performed collaborative research with Drs. Mark MacInnes and Robert Cary of the Biosciences Division. He

came to the Laboratory through the ORISE Office of Biological and Environmental Research (OBER) Minority Institutions (MI) Faculty Research Participation Program.

- The graduate student, Benjamin Cipiti, attends the University of Wisconsin-Madison, where he majors in nuclear engineering. His Laboratory mentor was Dr. Richard Nebel, from the Plasma Theory Group of the Theoretical Division. The student's research involved working on the Intense Neutron Source, an inertial electrostatic confinement fusion device. He conducted both experimental and theoretical work. He is a fellow in the ORISE Fusion Energy Sciences Fellowship Program.